PEACE/WILLISTON
FISH & WILDLIFE
COMPENSATION
PROGRAM

BC hydro

BRITISH
COLUMBIA

Muskwa Range (east of Finlay River) Winter Ungulate Inventory, March 1994

M. D. Wood
March 1994

PWFWCP Report No. 32

105-00940/

The Peace/Williston Fish & Wildlife Compensation Program is a cooperative venture of BC Hydro and the provincial fish and wildlife management agencies, supported by funding from BC Hydro. The Program was established to enhance and protect fish and wildlife resources affected by the construction of the W.A.C. Bennett and Peace Canyon dams on the Peace River, and the subsequent creation of the Williston and Dinosaur Reservoirs.

Peace/Williston Fish and Wildlife Compensation Program, 1011 Fourth Ave. 3rd Floor, Prince George B.C. V2L 3H9

Website: *www.bchydro.bc.ca/environment/initiatives/pwcp/*

This report has been approved by the Peace/Williston Fish and Wildlife Compensation Program Fish Technical Committee.

Citation: M. D. Wood. March 1994. Muskwa Range (east of Finlay River) winter ungulate inventory, March 1994. Peace/Williston Fish and Wildlife Compensation Program, Report No. 32. 6pp.

Author(s): Mari D. Wood[1]

Address(es): [1] Peace/Williston Fish and Wildlife Compensation Program, 1011 Fourth Ave., 3rd Floor Prince George, B.C. V2L 3H9

MUSKWA RANGES (EAST OF FINLAY RIVER) WINTER UNGULATE INVENTORY

MARCH 24/25, 1994

INTRODUCTION:

An inventory of high elevation mountain ranges between Shovel Creek on the Finlay Arm of the Williston Reservoir, and Kwadacha River, a tributary to the Finlay River, was conducted on March 24 and 25, 1994 (Figure 1).

SURVEY CONDITIONS:

The skies were mainly clear both days, with high light cloud. On the second day of the survey, some clouds were present between 2000 and 2300 metres, and the odd snowshower was encountered. The daytime temperature was around -5 degrees C., and winds were moderate to strong, blowing 40 knots at 2100 metres. Blowing snow was observed along ridges, and downdrafts were commonly encountered. Snow coverage was approximately 80% to 90%, with few windswept slopes. Snow depths appeared deep in the Muskwa Ranges, increasing towards the east with fewer snowfree ridges. Snow depths in the valleys ranged from 0.5 to 1.5 metres.

METHODS:

The survey was conducted with a Bell 206 helicopter chartered from Northern Mountain Helicopters in Mackenzie with pilot Rich Goddard, and three observers. Windswept, south and west facing ridges were searched for caribou; steeper rock bluffs for goats and sheep. Lower elevation south facing slopes along the Pesika and Akie Rivers were searched for elk. Ranges adjacent to the Reservoir and the Finlay River were surveyed, in addition to ranges further east as time permitted, and then only until deep snows and lack of tracks and animals were encountered. The navigator (Mari Wood, Peace/Williston Wildlife Biologist), searched for and classified animals, and recorded the flight line and locations of animals observed on 1:250,000 topographic maps. The two rear seat observers (Glen Watts, BCE Wildlife Biologist, and Dana Becker, BCE Forest Ecosystem Specialist) assisted with searching for, counting and recording groups of animals.

All ungulates were classified as adult male, adult female, unclassified adults, or young of the year. Adult caribou were classified as male or female using the presence/absence of the black vulval patch. Adult goats were classified as male or female based mainly on horn shape, and adult Stone's sheep were classified as Class I, II, III or IV males or females based on horn development.

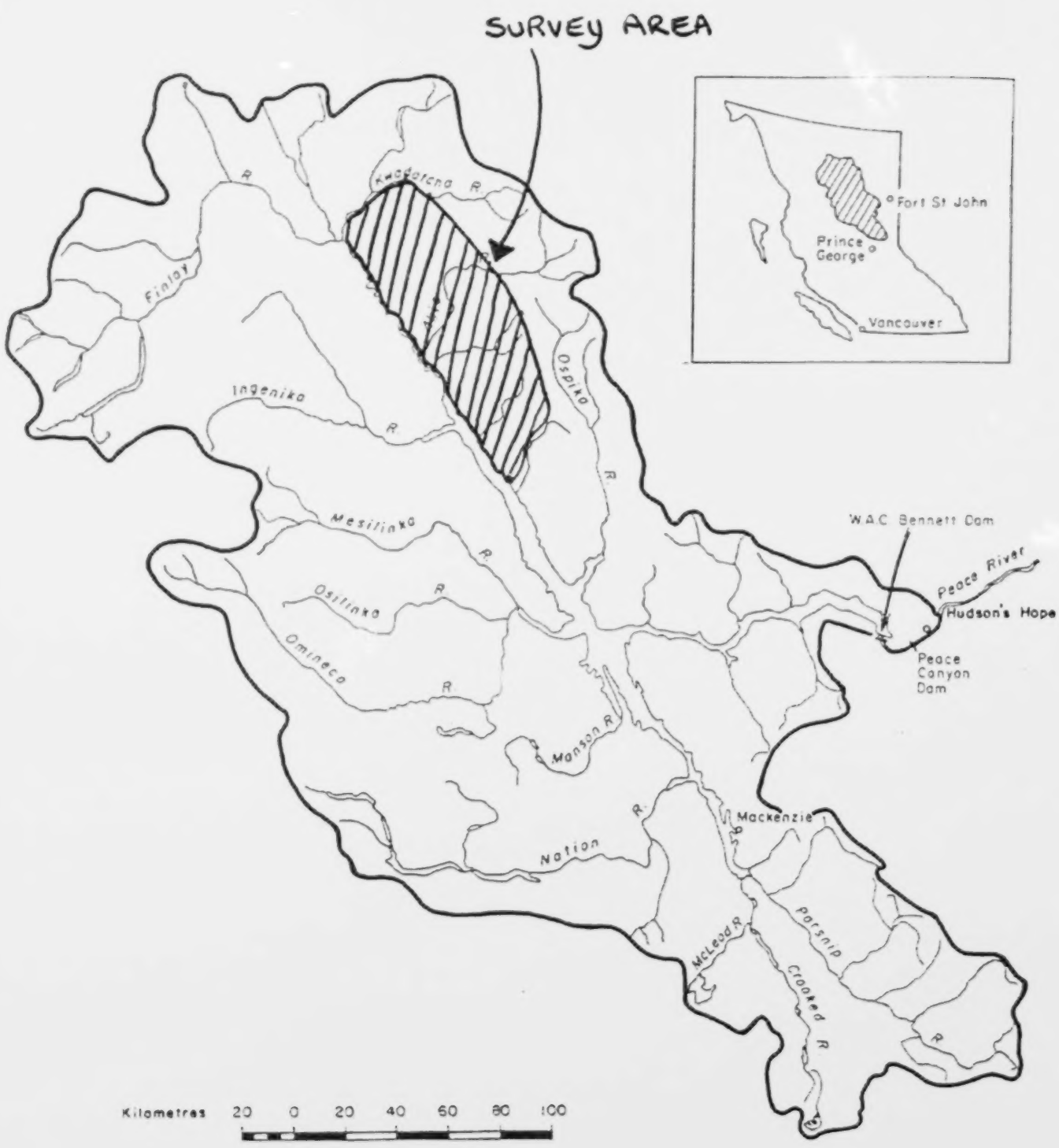

Figure 1. Survey area within Williston Reservoir watershed.

RESULTS:

On March 24, the north Shovel Creek, Deserters Peak and Pesika Mountain areas were surveyed on route from Mackenzie to Finbow Camp in the morning (Appendix A). The second bout of surveying commenced at about 12:00 pm along the Pesika River, included flying most mountain ranges in the Pesika/Akie area, and finished at 2:45 pm. Deeper snows were encountered as the survey progressed eastwards (nearing the headwaters of the major rivers) helping to form the natural cutoff boundary for the survey. The third portion of the survey commenced at 3:30 pm and included the ranges south of the Akie, and those to the north up to the Paul River, finishing at 5:00 pm.

On March 25, the last portion of the survey commenced at 7:50 am mid-way up the Del Creek drainage, and included all ranges between Del Creek and the Kwadacha River (Appendix A). In addition, Prarie Mountain west of Fort Ware, though not in the survey area, was searched for elk. The Muskwa Ranges survey area was broken down into three sub-areas: Area A - Shovel Creek to Rubyred Creek, Area B - Rubyred Creek to Del Creek, and Area C - Del Creek to Kwadacha River (Appendix A).

Caribou:

A total of 193 woodland caribou in 36 groups were observed on the survey: 46 caribou in Area A, 120 caribou in Area B, and 27 caribou in Area C (Tables 1,2 and 3, Appendix A). All caribou were located on windswept, south or west facing ridges. The bull/cow ratio for groups of caribou where adults were classified as male or female were 102 bulls/100 cows. This unusually high bull/cow ratio could in part be biased by excluding those caribou observed but not classified due to high winds and difficulty manoevering. Of the 10 groups where adult caribou were not classified (86 caribou: 45% of the total # observed), six of the groups (56 caribou), included calves suggesting that they were predominantly cow/calf groups, with possibly some young bulls. Of the 36 groups of caribou observed during the survey, nine were bull only groups (or bulls observed alone). Calf survival was average for caribou in northern B.C. at 13.5 calves/100 adults.

Typical group sizes (the typical size of a group than an individual is likely to find itself in) were calculated according to the methods described in Jarman (1974). Typical group size per area was 8.2 animals (Area A), 9.2 animals (Area B), and 5.0 animals (Area C) (Table 4). Typical group size for all caribou combined was 8.4 animals. Group sizes ranged from one to 16 caribou.

Mountain Goat:

A total of 36 mountain goats were observed on the survey: 5 in Area A, 20 in Area B, and 11 in Area C (Table 5, Appendix A). All were observed on steep rocky south or west facing terrain. Classification of adult goats was difficult in most cases, and was not always obtained to avoid excessive disturbance to the animals. Of the 36 goats however, 5 were kids. Group size ranged from 1 to 6 animals.

CARIBOU GROUPS AND CLASSIFICATIONS

Table 1: SHOVEL CR - RUBYRED CR (Area 1).

Group	M	F	C	UA	TOTAL
1				4	4
2				9	9
3			3	11	14
4		1	1		2
5				1	1
53	2				2
54	3	4			7
55	1	2	1		4
56	1	2			3
TOTAL	7	9	5	25	46

Table 2. RUBYRED CR - DEL R (Area 2).

Group	M	F	C	UA	TOTAL
6		1	1	2	4
7		2	2	9	13
8		1	1	7	9
9	2	4			6
17		1	1		2
18	1	1			2
22	4				4
23	1	3	1		5
24	7				7
25	3	1		4	8
26	1				1
27	1	4	1		6
28		6	2		8
29	2				2
30	4	1			5
31	2	1			3
35			3	13	16
36	4	8	3		15
37		4			4
TOTAL	32	38	15	35	120

Table 3. DEL R - KWADACHA R (Area 2).

Group	M	F	C	UA	TOTAL
38	3				3
39	1				1
40	3	2			5
43	3	1	1		5
44	1				1
46		1	1	6	8
47		2	1		3
50	1				1
TOTAL	12	6	3	6	27

Table 4. Typical group sizes (TGS) by Area.

	Area A	Area B	Area C	TOTAL
# groups	9	19	8	36
# caribou	46	120	27	193
TGS *	8.2	9.2	5.0	8.4

Table 5. Mountain goat groups and classifications.

Area	Group	M	F	K	UA	TOTAL
A	52		1	1	3	5
B	10				1	1
	12				1	1
	19					2
	20				1	1
	21		2	2	2	6
	34				2	2
	36				5	5
C	41				1	1
	42				1	1
	45				5	5
	48		1	1		2
	49		1	1		2
	TOTAL	4	5	5	22	36

Table 6. Stone's sheep groups and classifications.

Area	Group	M	F	L	UA	TOTAL
B	16	1*	5	2		8
	32		3	2		5
	33		2			2
	TOTAL	1	g	4		15

* Class II ram

Table 7. Elk groups and classifications

Area	Group	M	F	L	UA	TOTAL
	13	1	1			2
	51	1	2	2		5
	TOTAL	2	3	2		7

Table 8. Moose groups and classifications.

Area	Group	M	F	L	UA	TOTAL
	11				1	1
	14				2	2
	15				1	1
	TOTAL				4	4

Stone's Sheep:

A total of 15 Stone's sheep were observed on the survey, all in Area B. One Class II ram was observed, in addition to 10 ewes and 4 lambs (Table 6, Appendix A). Recruitment appears good, but total numbers are very low. The sheep were located on two southwest facing ridges, one to the south of the fork in Pesika Creek and one to the north. Snow depths are very high in this area to support much in the way of a population of Stone's sheep. Most probably move to higher elevations to the east in summer months.

Other Ungulates:

Two elk (one bull, one cow) were observed on the Pesika Burn (south facing sidehill north of the Pesika River), and five elk (one bull, two cows, two calves) were located on the west side of Prarie Mountain, northwest of Fort Ware (Table 7, Appendix A). Elk tracks were observed along the Finlay River. Since lower elevation areas were not searched for ungulates, few moose were observed on the survey as well. Incidental sightings of four moose were recorded along the Pesika Burn (Table 8, Appendix A).

RECOMMENDATIONS:

1. The Muskwa Ranges should be surveyed again (in particular Area B) to confirm or deny the seemingly high caribou bull/cow ratio observed on this survey. A total count of caribou on all ranges in the vicinity is necessary, as is classifying all adults observed.

2. A more thorough survey of ranges south of Rubyred Creek should be conducted. Only the block of mountains immediately adjacent to the reservoir was inventoried on this March 1994 survey: this area was second in priority to the area east of the Finlay River.

3. A number of windswept, south and west facing ridges were observed along the east side of the Parsnip Arm of the Williston Reservoir while returning to Mackenzie. A survey of these ranges, with particular emphasis on caribou, should be conducted.

LITERATURE CITED:

Jarman, R.J. 1974. Social organization of antelope in relation to their ecology. Behaviour 48:215-267.

WINTER UNGULATE SURVEY

Location East Finlay River — Area (km2) _____
Date March 24/94 - Mar 25/94 — M.U. _____
Method Fixed Survey
Observers Dan Wood, Glen Sutes, Dina Bickel, pilot Rick Eastland
Start Time _____ — End Time _____

Weather Conditions Clear/high cloud Day 2: Some clouds in pm, light snowshower
Temperature (C) -5C
Windspeed 10 Knots @ Tree
Snow Conditions: Hrs since snow _____
Snow Depth (cm) Some areas 0 Hogs, deep in mtns. valleys 1m+
Snow Coverage (%) 50% in valleys

Comments Day 2 spent covering, especially to the east. Most trapped into gut country. Terrain changes to favour fixed wings.

Ungulate Classification:

S: Stone's sheep — X: Moose
G: Mtn Goat — C: Caribou — E: Elk

M	adult male	YRf	yearling female
F	adult female	YRm	yearling male
C	calf	YR	unclassified yearling
L	lamb	K	kid
UA	unclassified adult		

GROUP #	TOTAL# GROUP	SPECIES/ CLASSIFICATION	NORTH	EAST	COMMENTS
1	4	C - 4UA			
2	9	C - 9UA			
3	14	C - 11UA, 3C			
4	2	C - ~~1F~~ 1UA, 1C			
5	1	C - 1UA			
6	4	C - 2UA, 1F, 1C			
7	13	C - 9UA, 2F, 2C			
8	9	C - 7UA, 1F, 1C			
9	6	C - 4F, 2M			

WINTER UNGULATE SURVEY

Location E. Finlay River Date March 24/94

GROUP #	TOTAL# GROUP	SPECIES/ CLASSIFICATION	NORTH	EAST	COMMENTS
10	1	C - 1UA			
11	1	X - 1UA			
12	1	C - 1UA			
13	2	C - 1M, 1F			
14	2	X - 2UA			
15	1	X - 1UA			
16	8	S - 5F, 2L, 1-IL			
17	2	C - 1F, 1C			
18	2	C - 1F, 1M			
19	4	C - 4M			
20	1	C - 1UA			
21	6	C - 2UA, 2K, 2F			
22	4	C - 4M			
23	5	C - 3F, 1M, 1C			
24	7	C - 7M			
25	8	C - 3M, 1F, 4UA			
26	1	C - 1M			
27	6	C - 4F, 1M, 1C			
28	8	C - 6F, 2C			
29	2	C - 2M			
30	5	C - 4M, 1F			
31	3	C - 2M, 1F			
32	5	S - 3F, 2L			
33	2	S - 2F			

WINTER UNGULATE SURVEY

Location East of Finlay River Date March 24/25/94

GROUP #	TOTAL# GROUP	SPECIES/ CLASSIFICATION	NORTH	EAST	COMMENTS
34	2	C - 2UA			
35	16	C - 13UA, 3C			
36	15	C - 8F, 4M, 3C	(AM) C - 5UA		
37	4	C - 4F			
38	3	C - 3M			
39	1	C - 1M			
	MARCH 25th/94 Sunny, -3°C				
40	5	C 3M, 2F			
41	1	C - 1UA			
42	1	C - 1UA			
43	5	C - 3M, 1F, 1C			
44	1	C - 1M			
45	5	C - 5UA			
46	8	C - 7UA, 1C			
47	3	C - 2F, 1C			
48	2	C - 1F, 1K			
49	2	C - 1F, 1K			
50	1	C - 1M			
51	5	E - 1M, 2F, 2C			
52	5	C - 3UA, 1K, 1F			
53	2	C - 2M			
54	7	C - 3M, 4F			
55	4	C - 2F, 1M, 1C			
56	3	C - 1M, 2F			

good summer
great Sail lots
Snow now
MUSKWA
(ROCKY MOUNTAIN
MONTAGNES ROCHEUSES)
ROCKY MOUNTAIN
RANGE
FINLAY
BUTLER
MOUNTAIN
RANGE
Fort
Mackenzie
(Ryan)
Mount
Ferguson

MOUNTAIN
TRENCH
RANGES
Deserters Range
Creek

KWADACHA
PROVINCIAL
RECREATION AREA
TOCHIENA
RANGE
SIFTON
RANGES
ROCKY
MOUNTAINS
MUSKWA
MONTAGNES
ROCHEUSES
OMINECA
end (25th)
10a.m.
start (25th)
1:20pm
end (24th)
2:45pm